

Control of Lepidopterous Larvae in Fall Cabbage – 2005: Promising new chemistry and labeled insecticides were evaluated for control of the cabbage insect complex. 'Blue Thunder' field-grown cabbage transplants were planted on July 22 at Papen Farms, Inc., Dover, DE. Plots consisted of one 20-ft-long row on 3-ft centers. Each treatment was replicated four times and arranged in a RCB design. The evaluated materials are listed in the tables. Foliar materials were applied on Aug 17, 30; and Sept 12. Applications were made with a CO₂ backpack sprayer with a one-row boom, having 3 hollow-cone nozzles per row (one over the top and one drop nozzle on each side) delivering 39 gpa at 40 psi. Penetrator Plus was included in all applications at a rate of 0.5% vol./vol. The number of lepidopterous larvae on each of 5 randomly selected plants per plot was recorded on a weekly basis from Aug 12 through September 20. The numbers of marketable heads were determined by examining feeding damage on the head and two wrapper leaves on October 4. Data were analyzed using ANOVA and means were separated by Ryan's q-test (P=0.05).

DBM and CL populations were low-moderate. All treatments provided significantly better DBM control compared to the untreated check on Sept 20. All treatments provided significantly better cabbage looper control and a higher percentage of marketable heads compared to the untreated check. No phytotoxicity was observed.

Table 1 – Diamondback Moth (DBM) Counts

Treatment	Treatment Timing	Rate/A	% Marketable Heads	Mean Number DBM Larvae per 5 plants		
				Aug 19	Sept 6	Sept 20
Novaluron 0.83 EC	Aug 17,30 Sept 12	12 oz	95.83a	0.00a	0.00a	0.00b
Novaluron 0.83 EC Avaunt 30 WDG	Aug17,Sept12 Aug30	12 oz 3.5 oz	94.44a	0.00a	0.00a	0.00b
Novaluron 0.83EC Avaunt 30WG Spintor 2SC	Aug 17 Aug 30 Sept 12	12 oz 3.5 oz 4 oz	98.33a	0.00a	0.00a	0.00b
Spintor 2 SC	Aug 17,30 Sept 12	4 oz	100.00a	0.00a	0.00a	0.00b
Avaunt 30WDG	Aug 17,30 Sept 12	3.5 oz	98.53a	0.00a	0.00a	0.00b
BAS 320	Aug 17,30 Sept 12	16 oz	98.53a	0.00a	0.00a	0.00b
Assail 30SG	Aug 17,30 Sept 12	4 oz	95.67a	0.00a	0.00a	0.25b
Assail 70 WP	Aug 17,30 Sept 12	1.7 oz	96.97a	0.00a	0.00a	0.00b
Mustang 0.8EW	Aug 17,30 Sept 12	4 oz	94.74a	0.00a	0.00a	0.75b
Untreated		---	77.66b	0.00a	0.25a	3.50a

All foliar sprays were applied with Penetrator Plus at a rate of 0.5% V/V

Means within a column followed by the same letter are not significantly different (Ryan's q-test, P=0.05).

Table 2 – Cabbage Looper (CL) counts

Treatment	Treatment Date	Rate/A	Mean Number CL larvae per 5 plants			
			Aug 19	Sept 6	Sept 15	Sept 20
Novaluron 0.83 EC	Aug 17,30 Sept 12	12 oz	0.00a	0.00b	0.00b	1.00bc
Novaluron 0.83 EC Avaunt 30 WDG	Aug17,Sept12 Aug30	12 oz 3.5 oz	0.75a	0.00b	0.00b	0.75bc
Novaluron 0.83 EC Avaunt 30WG Spintor 2SC	Aug 17 Aug 30 Sep 12	12 oz 3.5 oz 4 oz	0.00a	0.00b	0.00b	0.25c
Spintor 2 SC	Aug 17,30 Sept 12	4 oz	0.00a	0.00b	0.00b	0.00c
Avaunt 30WDG	Aug 17,30 Sept 12	3.5 oz	0.25a	0.00b	0.00b	0.00c
BAS 320	Aug 17,30 Sept 12	16 oz	0.25a	0.00b	0.00b	0.25c
Assail 30SG	Aug 17,30 Sept 12	4 oz	0.00a	0.25b	0.00b	1.25bc
Assail 70 WP	Aug 17,30 Sept 12	1.7 oz	0.25a	0.25b	0.50b	1.75b
Mustang 0.8EW	Aug 17,30 Sept 12	4 oz	0.00a	0.25b	0.00b	0.50bc
Untreated	Aug 17,30 Sept 12	---	0.00a	1.50a	1.25a	5.50a

Means within a column followed by the same letter are not significantly different (Ryan's q-test, P=0.05).

Insect Management in Cucumbers with Seed Treatments, 2005:

Investigators: Alan Taylor, Cornell University; Joanne Whalen and Marty Spellman, University of Delaware

'Sassy' cucumbers were planted on June 8 at the University of Delaware's Research and Education Center located near Georgetown, DE. Plots consisted of four 20 ft-long plots on 30-inch centers. Treatments were replicated four times in a RCB design. Seed-applied treatments were applied with a DISCO 'A' film coating polymer in A. Taylor's lab at Cornell University. Stand counts, cucumber beetle damage and aphid levels were evaluated on a weekly basis from June 14 to June 30. Data were analyzed using ANOVA and means were separated by Ryan's q-test (P=0.05).

Cucumber beetle and aphid pressure was light. No significant differences were observed between the treatments and the untreated check. No phytotoxicity was observed.

I. Stand Count

Treatments *	Rate g ai/100 kg seed	Stand Count – 40 ft of row	
		June 14	June 22
Apron XL LS + Thiram 42-S	0.64 oz/100 lbs 4.5 oz/100 lbs	75.75a	75.00a
Regent 6.2 FS	2.58 g ai / 100 g	82.00a	80.00a
Cruiser 5FS	1.55 g ai /100 g	83.25a	77.00a
Cruiser 5FS	2.58 g ai / 100 g	81.50a	81.50a
Cruiser 5FS	4.30 g ai / 100 g	82.75a	79.25a

Means within a column followed by the same letter are not significantly different (Ryan's q-test; P=0.05).

* All cucumber treatments have Apron XL LS (0.64 fl.oz./100 lbs. of seed), and 42-S Thiram (4.5 fl. oz./100 lbs. of seed).

II. Cucumber beetle Counts and Damage

Treatments	Rate g ai/100 kg seed	Cucumber beetles per 20 plants			% Cucumber Beetle Damaged		
		Jun 14	Jun 22	Jun 30	Jun 14	Jun 22	Jun 30
Apron XL LS + Thiram 42-S	0.64 oz/100 lbs 4.5 oz/100 lbs	0	0.50a	1.75a	2.50a	13.75a	22.50a
Regent 6.2 FS	2.58 g ai / 100 g	0	1.50a	1.50a	1.25a	16.25a	18.75a
Cruiser 5FS	1.55 g ai /100 g	0	3.00a	2.00a	0.00	18.75a	10.00a
Cruiser 5FS	2.58 g ai / 100 g	0	1.00a	4.25a	1.25a	3.75	6.25a
Cruiser 5FS	4.30 g ai / 100 g	0	1.00a	1.75a	2.50a	5.00a	5.00a

Means within a column followed by the same letter are not significantly different (Ryan's q-test; P=0.05).

III. Aphid Counts and Infestation Levels

Treatments	Aphids per 20 Plants	
	June 22	June 30
Apron XL + Thiram	1.50a	2.50a
Regent 6.2 FS	0.00a	1.00a
Cruiser 5FS	11.25a	0.00a
Cruiser 5FS	0.00a	0.00a
Cruiser 5FS	0.00a	0.00a

Means within a column followed by the same letter are not significantly different (Ryan's q-test; P=0.05).

Aphid Management in Bell Peppers: ‘Aristotle’ bell peppers were transplanted on May 27 at the University of Delaware Research and Education center located near Georgetown, DE. One row plots 20 ft long on 6 ft centers were replicated 4 times in a RCB design. All foliar materials were applied beginning at first flower/small fruit on June 22 and then on a weekly basis on June 28; July 6, 13, 20, 27; and Aug 4. Aphid treatments started on June 20 in the Actara and Fulfill plots. Applications were made with a CO₂ backpack sprayer with a one-row boom, having 3 hollow-cone nozzles per row (one over the top and one drop nozzle on each side) delivering 39 gpa at 40 psi. Plots were sampled on a weekly basis from June 1 through August 9 for green peach aphid (GPA) aphids, European corn borer (ECB) egg masses, beet armyworm (BAW) egg masses, and corn earworm(CEW) and fall armyworm(FAW) damaged fruit. All commercial size peppers were harvested on July 19, Aug 3 and Aug 16 and evaluated for ECB, CEW and FAW damage. Data were analyzed using ANOVA and means were separated by Ryan’s q-test (P=0.05).

Aphid populations were moderate. No “worm” damage was found on fruit throughout the season. No differences were observed between treatments throughout the season. No phytotoxicity was observed.

1. Green Peach Aphid Counts

Treatment	Timing	Rate/A	GPA/10 plants		GPA per 50 leaves			
			Jun21	Jul 5	Jul 19	Jul 26	Aug 3	Aug 10
Warrior	Jun22,28; Jul6,13	3.84 oz						
Actara 25WDG	July20,27; Aug 4	4 oz	1.00a	50.5a	451.0a	1.75a	1.00a	0.00b
Warrior	Jun22,28; Jul 6, 13, July20,27	3.84 oz						
Fulfill 50WDG	Aug 4	2.75 oz	0.00a	0.00a	52.00a	0.00a	3.50a	3.00b
Proclaim 5WDG	Jun22,28; Jul6,13, 20, 27, Aug 4	4.8 oz	0.00a	0.25a	48.00a	7.00a	0.00a	19.75a
Untreated		-----	0.00a	3.00a	48.80a	3.50a	5.00a	21.75a

Means within a column followed by the same letter are not significantly different (Ryan’s q-test; P=0.05)

2. Yield Data – Total Number Fruit

Treatment	Rate/A	Total Number of Fruit per 20 ft of row			Cumulative Fruit Harvest (3 Harvests) Total # Fruit
		July 19	Aug 3	Aug 16	
Warrior Actara 25WDG	Jun22,28; Jul 6,13 July 20, 27; Aug 4	30.25a	27.50a	39.00a	96.75a
Warrior Fulfill 50WDG	Jun22,28; Jul 6,13 July 20, 27; Aug 4	33.75a	29.00a	49.00a	111.75a
Proclaim 5WDG	Jun22,28; Jul 6,13, 20, 27; Aug 4	28.25a	24.75a	55.50a	108.50a
Untreated	-----	23.50a	30.25a	62.75a	116.50a

Means within a column followed by the same letter are not significantly different (Ryan's q-test; P=0.05)

Insect Management in Bell Peppers: ‘Aristotle’ bell peppers were transplanted on May 27 at the University of Delaware Research and Education center located near Georgetown, DE. Four row plots 20 ft long on 6 ft centers were replicated 4 times in a RCB design. All foliar materials were applied beginning first flower/small fruit on June 24 and then on a weekly basis on June 30; July 7,14,21,28; and Aug 5. Applications were made with a CO₂ backpack sprayer with a one-row boom, having 3 hollow-cone nozzles per row (one over the top and one drop nozzle on each side) delivering 39 gpa at 40 psi. Plots were sampled on a weekly basis from June 1 through August 9 for aphids, European corn borer (ECB) egg masses, beet armyworm (BAW) egg masses, and corn earworm(CEW) and fall armyworm(FAW) damaged fruit. All commercial size peppers were harvested on July 19, Aug 3 and Aug 15 and evaluated for ECB, CEW and FAW damage. Data were analyzed using ANOVA and means were separated by Ryan’s q-test (P=0.05).

ECB, BAW, CEW, FAW and levels were very low and no differences were observed between treatments throughout the season. Significantly higher levels of aphids were found in the Warrior and Avaunt plots on July 26, Aug 3 and 9 compared to the other treatments and untreated controls. No phytotoxicity was observed.

1. Pretreatment Counts

Treatment	Rate/A	Green peach aphids per 20 plants			
		June 1	June 8	June 15	June 21
Warrior	3.84 oz	1.75a	0.50b	0.75a	1.25a
Orthene 97	1 lb	0.00a	1.25b	3.25a	1.25a
Spintor 2SC	6 oz	0.00a	0.00b	0.00a	0.00a
Avaunt 30WDG	3.5 oz	0.50a	0.25b	0.50a	0.00a
Intrepid 2 F	8 oz	0.00a	0.00b	0.00a	0.25a
Untreated	-----	3.50a	8.25a	14.75a	0.25a

Means within a column followed by the same letter are not significantly different (Ryan’s q-test; P=0.05)

2. Post-treatment Counts

Treatment	Rate/A	Green Peach Aphid per 50 leaves					
		July 5	July 12	July 19	July 26	Aug 3	Aug 9
Warrior	3.84 oz	24.50a	23.25a	220.75a	136.50a	406.00a	696.80a
Orthene 97	1 lb	0.00a	0.00a	0.00b	0.25c	1.00b	0.80c
Spintor 2SC	6 oz	2.00a	0.50a	4.00b	1.25c	3.80b	16.80b
Avaunt 30WDG	3.5 oz	0.00a	13.25a	35.25ab	37.25b	276.50a	698.80a
Intrepid 2 F	8 oz	1.50a	2.00a	3.50b	1.75c	2.50b	14.50bc
Untreated	-----	27.25a	3.50a	4.50b	1.00c	4.80b	10.00bc

Means within a column followed by the same letter are not significantly different (Ryan's q-test; P=0.05). Data for green peach aphid were log transformed [$\log_{10}(n+1)$], non-transformed means are presented.

3. Yield Data – Total Number Fruit

Treatment	Rate/A	Total Number of Fruit per 40 ft of row			Cumulative Fruit Harvest (3 Harvests) Total # Fruit
		July 19	Aug 3	Aug 15	
Warrior	3.84 oz	88.00a	68.50ab	39.50a	196.00a
Orthene 97	1 lb	84.50a	60.60ab	43.75a	188.75b
Spintor 2SC	6 oz	73.50ab	86.75a	57.75a	218.00a
Avaunt 30WDG	3.5 oz	72.75ab	40.75b	31.75a	145.25b
Intrepid 2 F	8 oz	68.00b	62.00ab	63.50a	193.50ab
Untreated	-----	84.50a	63.50ab	61.75a	208.75a

Means within a column followed by the same letter are not significantly different (Ryan's q-test; P=0.05)

Insect Management in Potatoes - 2005: ' Superior' potatoes were planted at Shady Brook Farms located near Little Creek, DE on April 20. Plots consisted of two 25 ft-long rows on 3-ft centers. Each treatment was replicated four times and arranged in a RCB design. At-planting treatments were applied with a hand held one nozzle backpack sprayer delivering 5 gpa@ 40 psi.. All plots received a foliar application of Spintor at 6 oz/A on June 1 due to heavy and uneven CPB adult populations. All plots received a maintenance spray of Baythroid at 2 oz/A for leafhoppers on Jul 5 and 11. All foliar treatments were applied with a CO₂ pressurized ATV 4-wheeled sprayer delivering 38 gpa at 40 psi. All foliar sprays of BAS 320 were applied with Penetrator Plus at a rate of 0.5% v/v.

Data were taken weekly from May 26 through Jul 14 from both rows of each plot and included the following: the number of CPB adults, egg masses, small and large larvae/5 randomly selected stems in each plot, and the number of potato leafhopper adults and nymphs per 5 sweeps within each plot. A visual defoliation ranking (1= 1-20%, 2 = 21-30%, 3= 31-50%, 4 = 51-80% and 5 = 81-100%) was completed on June 30 and July 14. Data were analyzed using ANOVA and means were separated by Ryan's q-test (P=0.05).

Colorado potato beetle pressure was extremely heavy. Potato leafhopper pressure was light. No European corn larval infestations were found in any plot. On July 7, all treatments provided significantly better CPB adult control compared to the untreated check. All treatments provided significantly better CPB large larvae control compared to the untreated check on June 24 and June 30. BAS320 provided the best small larvae control on June 24. All treatments provided a significantly lower percentage of defoliation compared to the untreated check. No differences were observed between treatments for PLH populations. No phytotoxicity was observed.

Table 1. Colorado Potato Beetle (CPB) Adult Counts

Treatment	Application Dates	Rate/A	Mean Number CPB Adults per 5 Plants						
			May 26	May 31	Jun 13	Jun 20	Jun 24	Jun 30	July 7
Admire 2F BAS320 w/PPlus Kryocide 96WP	April 20 Jun 8, 14, 21 Jul 11	16 oz 4.57 oz + 0.5%V/V 8 lb	1.50a	11.00a	5.00a	1.50a	1.25a	1.00a	1.75bc
Platinum Ridomil Gold BAS 320w/PPlus Kryocide 96WP	April 20 Jun 8,14,21 Jul 11	32 oz 4.57 oz + 0.5%V/V 8 lb	2.25a	7.50a	1.50a	1.25a	0.50a	0.75a	2.50bc
BAS 320 – w/P Plus Kryocide 96WP	Jun 8,14,21 Jul 11	4.57 oz + 0.5%V/V 8 lb	3.25a	5.75a	6.75a	1.25a	0.25a	1.75a	1.75bc
Novodor Spintor 2SC	Jun 8, 14,21 July 1	4 qts 5 oz	1.00a	6.50a	3.25a	3.00a	1.00a	0.00a	7.00bc
BAS320 w/PPlus Kryocide 96WP	Jun 8, 14,21 Jul 11	4.57 oz + 0.5%V/V 8 lb	1.75a	5.75a	4.25a	2.50a	0.75a	2.00a	1.00c
Trigard 75WSP Actara 25WDG Spintor 2SC	June 8 Jun 14 Jun 21, Jul 1	5.33 oz 1.5 oz 5 oz	2.00a	5.50a	2.50a	3.25a	2.00a	0.75a	1.50c
Actara 25WDG+ Warrior Spintor 2SC	Jun 8, 14 Jun 21, Jul 1	1.62 oz + 2.4 oz 5 oz	1.50a	6.25a	15.25a	2.50a	2.25a	0.50a	2.50bc
A13623 Spintor 2SC	Jun 8, 14 Jun 21, Jul 1	2.74 oz 5 oz	2.75a	6.25a	11.50a	6.25a	2.75a	1.50a	1.50c
Agrimek 0.15EC+ Warrior Spintor 2SC	Jun 8, 14 Jun 21, Jul 1	8 oz + 1.92 oz 5 oz	0.25a	8.00a	4.00a	3.75a	1.00a	0.25a	11.00b
Platinum Ridomil Gold Spintor 2SC Kryocide 96WP	April 20 Jun 8,14,21 Jul 11	32 oz 5 oz 8 lb	0.75a	6.75a	10.50a	7.25a	2.00a	0.50a	3.00bc
Platinum Ridomil Gold AgriMek 0.15EC Spintor 2SC	April 20 Jun 8, 14 Jun 21	32 oz 8 oz 5 oz	0.00a	8.50a	14.00a	6.25a	1.75a	1.75a	1.25c
Trigard 75 WSP Agrimek 0.15EC+ Warrior Spintor 2SC Kryocide 96WP	Jun 8 Jun 14 Jun 21, July 1 Jul 11	5.33 oz 8 oz + 3.2 oz 5 oz 8 lb	1.75a	7.75a	4.00a	4.50a	1.00a	0.75a	7.00bc
Platinum Ridomil Gold	April 20	32 oz	0.75a	12.00a	11.25a	5.50a	0.25a	0.00a	2.25bc
Rimon 0.83EC+ Actara Rimon 0.83EC Spintor 2SC	Jun 8 Jun 14 Jun 21,Jul 1	9 oz + 3 oz 12 oz 5 oz	3.50a	10.75a	6.00a	2.75a	2.50a	1.00a	3.50bc
Rimon 0.83EC + Actara Spintor 2SC Kryocide 96WP	Jun 8, Jun 14 Jun 21 July 11	9 oz + 3 oz 5 oz 8 lb	1.00a	9.25a	13.50a	5.25a	2.25a	1.00a	2.50bc
Untreated	----	----	3.25a	9.25a	4.75a	6.00a	0.25a	1.75a	33.00a

Means within a column followed by the same letter are not significantly different (Ryan's q-test; P=0.05)

Table 2. Colorado Potato Beetle Small Larvae(SL)

Treatment	Application Dates	Rate/A	Mean Number SL per 5 Plants				
			Jun 13	Jun 20	Jun 24	Jun 30	July 7
Admire 2F BAS320 w/PPlus Kryocide 96WP	April 20 Jun 8, 14, 21 Jul 11	16 oz 4.57 oz + 0.5%V/V 8 lb	38.50a	39.75ab	0.75b	3.75a	42.00a
Platinum Ridomil Gold BAS 320w/PPlus Kryocide 96WP	April 20 Jun 8,14,21 Jul 11	32 oz 4.57 oz + 0.5%V/V 8 lb	69.25a	21.50b	4.00ab	12.25a	7.25a
BAS 320 – w/P Plus Kryocide 96WP	Jun 8,14,21 Jul 11	4.57 oz + 0.5%V/V 8 lb	41.50a	31.75ab	0.00b	2.25a	12.25a
Novodor Spintor 2SC	Jun 8, 14,21 July 1	4 qts 5 oz	69.75a	53.25ab	15.25ab	4.75a	2.00a
BAS320 w/PPlus Kryocide 96WP	Jun 8, 14,21 Jul 11	4.57 oz + 0.5%V/V 8 lb	68.00a	31.50ab	2.25ab	0.50a	19.75a
Trigard 75WSP Actara 25WDG Spintor 2SC	June 8 Jun 14 Jun 21, Jul 1	5.33 oz 1.5 oz 5 oz	83.75a	20.50b	4.25ab	12.75a	3.50a
Actara 25WDG+ Warrior Spintor 2SC	Jun 8, 14 Jun 21, Jul 1	1.62 oz + 2.4 oz 5 oz	31.75a	58.75ab	10.75ab	5.25a	6.25a
A13623 Spintor 2SC	Jun 8, 14 Jun 21, Jul 1	2.74 oz 5 oz	28.50a	78.75ab	6.75ab	10.50a	8.25a
Agrimek 0.15EC+ Warrior Spintor 2SC	Jun 8, 14 Jun 21, Jul 1	8 oz + 1.92 oz 5 oz	70.25a	124.25a	3.50ab	13.25a	1.75a
Platinum Ridomil Gold Spintor 2SC Kryocide 96WP	April 20 Jun 8,14,21 Jul 11	32 oz 5 oz 8 lb	49.25a	57.75ab	16.00ab	4.25a	18.50a
Platinum Ridomil Gold AgriMek 0.15EC Spintor 2SC	April 20 Jun 8, 14 Jun 21	32 oz 8 oz 5 oz	37.75a	47.50ab	7.50ab	11.25a	9.25a
Trigard 75 WSP Agrimek 0.15EC+ Warrior Spintor 2SC Kryocide 96WP	Jun 8 Jun 14 Jun 21, July 1 Jul 11	5.33 oz 8 oz + 3.2 oz 5 oz 8 lb	57.25a	61.50ab	6.00ab	10.50a	19.25a
Platinum Ridomil Gold	April 20	32 oz	38.25a	44.50ab	15.25ab	18.00a	6.75a
Rimon 0.83EC+ Actara Rimon 0.83EC Spintor 2SC	Jun 8 Jun 14 Jun 21,Jul 1	9 oz + 3 oz 12 oz 5 oz	17.75a	84.50ab	7.75ab	26.00a	6.25a
Rimon 0.83EC + Actara Spintor 2SC Kryocide 96WP	Jun 8, Jun 14 Jun 21 July 11	9 oz + 3 oz 5 oz 8 lb	28.75a	43.75ab	4.00ab	9.00a	18.00a
Untreated	-----	-----	81.50a	102.00ab	34.25a	7.00a	8.00a

Means within a column followed by the same letter are not significantly different (Ryan's q-test; P=0.05)

Table 3. Colorado Potato Beetle Large Larvae (LL)

Treatment	Application Dates	Rate/A	Mean Number LL per 5 Plants				
			Jun 20	Jun 24	Jun 30	July 7	July 14
Admire 2F BAS320 w/PPlus Kryocide 96WP	April 20 Jun 8, 14, 21 Jul 11	16 oz 4.57 oz + 0.5%V/V 8 lb	0.50d	0.00b	0.50c	1.00b	2.75bcd
Platinum Ridomil Gold BAS 320w/PPlus Kryocide 96WP	April 20 Jun 8,14,21 Jul 11	32 oz 4.57 oz + 0.5%V/V 8 lb	0.50d	0.00b	0.25c	3.75b	3.50bcd
BAS 320 – w/P Plus Kryocide 96WP	Jun 8,14,21 Jul 11	4.57 oz + 0.5%V/V 8 lb	0.00d	0.00b	0.00c	7.00b	2.75bcd
Novodor Spintor 2SC	Jun 8, 14,21 July 1	4 qts 5 oz	10.50cd	15.25b	14.75bc	0.25b	4.25bcd
BAS320 w/PPlus Kryocide 96WP	Jun 8, 14,21 Jul 11	4.57 oz + 0.5%V/V 8 lb	0.00d	0.50b	1.25c	8.50b	3.50bcd
Trigard 75WSP Actara 25WDG Spintor 2SC	June 8 Jun 14 Jun 21, Jul 1	5.33 oz 1.5 oz 5 oz	4.75d	2.75b	4.25c	0.25b	4.50bcd
Actara 25WDG+ Warrior Spintor 2SC	Jun 8, 14 Jun 21, Jul 1	1.62 oz + 2.4 oz 5 oz	2.00d	2.00b	7.25c	0.00b	14.00abc
A13623 Spintor 2SC	Jun 8, 14 Jun 21, Jul 1	2.74 oz 5 oz	10.25cd	1.75b	4.00c	0.50b	4.50bcd
Agrimek 0.15EC+ Warrior Spintor 2SC	Jun 8, 14 Jun 21, Jul 1	8 oz + 1.92 oz 5 oz	50.75ab	9.25b	12.50bc	0.25b	8.50abcd
Platinum Ridomil Gold Spintor 2SC Kryocide 96WP	April 20 Jun 8,14,21 Jul 11	32 oz 5 oz 8 lb	0.50d	0.00b	3.25c	2.25b	2.25cd
Platinum Ridomil Gold AgriMek 0.15EC Spintor 2SC	April 20 Jun 8, 14 Jun 21	32 oz 8 oz 5 oz	3.50d	0.75b	3.50c	0.25b	5.25bcd
Trigard 75 WSP Agrimek 0.15EC+ Warrior Spintor 2SC Kryocide 96WP	Jun 8 Jun 14 Jun 21, July 1 Jul 11	5.33 oz 8 oz + 3.2 oz 5 oz 8 lb	35.50bc	11.00b	6.50c	0.00b	0.50d
Platinum Ridomil Gold	April 20	32 oz	8.25d	14.75b	30.00b	22.00a	14.50ab
Rimon 0.83EC+ Actara Rimon 0.83EC Spintor 2SC	Jun 8 Jun 14 Jun 21,Jul 1	9 oz + 3 oz 12 oz 5 oz	11.25cd	0.50b	1.00c	0.25b	7.50abcd
Rimon 0.83EC + Actara Spintor 2SC Kryocide 96WP	Jun 8, Jun 14 Jun 21 July 11	9 oz + 3 oz 5 oz 8 lb	1.50d	2.00b	0.75c	9.75b	5.25bcd
Untreated	-----	-----	70.50a	43.25a	70.00a	9.50b	18.25a

Means within a column followed by the same letter are not significantly different (Ryan's q-test; P=0.05)

Table 4. Potato Leafhopper(PLH) and Defoliation Rating

Treatment	Timing	Mean # PLH/5 sweeps		Defoliation Rating	
		June 20	June 24	June 30	July 14
Admire 2F BAS320 w/PPlus Kryocide 96WP	April 20 Jun 8, 14, 21 Jul 11	0.75a	4.50a	1.00c	1.00c
Platinum Ridomil Gold BAS 320w/PPlus Kryocide 96WP	April 20 Jun 8,14,21 Jul 11	0.00a	3.00a	1.00c	1.00c
BAS 320 – w/P Plus Kryocide 96WP	Jun 8,14,21 Jul 11	0.00a	5.75a	1.00c	1.00c
Novodor Spintor 2SC	Jun 8, 14,21 July 1	0.00a	5.00a	1.75b	1.00c
BAS320 w/PPlus Kryocide 96WP	Jun 8, 14,21 Jul 11	0.00a	6.75a	1.00c	1.00c
Trigard 75WSP Actara 25WDG Spintor 2SC	June 8 Jun 14 Jun 21, Jul 1	0.00a	4.25a	1.00c	1.00c
Actara 25WDG+ Warrior Spintor 2SC	Jun 8, 14 Jun 21, Jul 1	0.50a	2.25a	1.00c	1.00c
A13623 Spintor 2SC	Jun 8, 14 Jun 21, Jul 1	0.25a	1.50a	1.00c	1.25c
AgriMek 0.15EC+ Warrior Spintor 2SC	Jun 8, 14 Jun 21, Jul 1	0.00a	4.00a	1.00c	1.00c
Platinum Ridomil Gold Spintor 2SC Kryocide 96WP	April 20 Jun 8,14,21 Jul 11	0.25a	3.50a	1.00c	1.00c
Platinum Ridomil Gold AgriMek 0.15EC Spintor 2SC	April 20 Jun 8, 14 Jun 21	1.00a	3.00a	1.00c	1.00c
Trigard 75 WSP AgriMek 0.15EC+ Warrior Spintor 2SC Kryocide 96WP	Jun 8 Jun 14 Jun 21, July 1 Jul 11	0.00a	5.50a	1.00c	1.00c
Platinum Ridomil Gold	April 20	1.50a	4.75a	2.00b	2.00b
Rimon 0.83EC+ Actara Rimon 0.83EC Spintor 2SC	Jun 8 Jun 14 Jun 21,Jul 1	0.25a	1.50a	1.00c	1.00c
Rimon 0.83EC + Actara Spintor 2SC Kryocide 96WP	Jun 8, Jun 14 Jun 21 July 11	0.00a	1.75a	1.00c	1.00c
Untreated	-----	0.75a	5.50a	4.25a	4.75a

Means within a column followed by the same letter are not significantly different (Ryan's q-test; P=0.05)

Insect Management in Snap Beans with Seed Treatments, 2005: 'Slenderette' snap beans were planted on April 27 at the University of Delaware's Research and Education Center located near Georgetown, DE. Plots consisted of four 20 ft-long plots on 30-inch centers. Treatments were replicated four times in a RCB design. Seed-applied treatments were applied commercially by Syngenta Seeds. A 2- inch band of meat and bone meal was placed over each row at planting to increase seed corn maggot (SCM) oviposition at a rate of 320 grams per 20 ft of row. Stand counts and SCM damage were evaluated on May 13 and 17. The number of thrips and leafhoppers per 20 leaflets were counted on a weekly basis in each planting from the first true-leaf stage through mature pods. Data were analyzed using ANOVA and means were separated by Ryan's q-test (P=0.05).

Seed corn maggot pressure was moderate. The Cruiser, Lorsban, Cruiser + Lorsban and Poncho treatments provided significantly better stand counts and % SCM damaged plants compared to the untreated check. The Lorsban plus Cruiser treatment provided the best season-long SCM control. Thrips and potato leafhopper pressure was low. Bean leaf beetle (BLB) pressure was moderate. All treatments provided significantly better BLB control compared to the untreated checks on May 31. The Cruiser treatments provided the best season-long thrips control. No phytotoxicity was observed.

Table 1. Stand Count

Treatments	Rate g ai/100 kg seed	Stand Count – 40 ft of row		
		May 13	May 17	May 31
Untreated	---	63.33a	45.75b	38.25b
Maxim Apron XL Streptomycin	2.5 7.5 2.0% v/v	51.67a	46.00b	36.25b
Maxim Apron XL Streptomycin Lorsban –SL	2.5 7.5 2.0% v/v 62	51.00a	102.50a	99.00a
Maxim Apron XL Streptomycin Cruiser 5FS	2.5 7.5 2.0% v/v 50	71.00a	116.75a	110.50a
Maxim Apron XL Streptomycin Lorsban –SL Cruiser 5FS	2.5 7.5 2.0% v/v 62 50	48.00a	111.50a	105.00a
Maxim Apron XL Streptomycin Poncho 600	2.5 7.5 2.0% v/v 60	72.67a	123.00a	119.00a

Means within a column followed by the same letter are not significantly different (Ryan's q-test; P=0.05).

Table 2. Seed Corn Maggot Data

Treatments	Rate g ai/100 kg seed	Total SCM/5 seeds		% SCM Damaged	
		May 13	May 17	May 13	May 17
Untreated	---	2.84a	1.00a	81.60a	91.60a
Maxim Apron XL Streptomycin	2.5 7.5 2.0% v/v	3.49a	1.00a	86.80a	86.80a
Maxim Apron XL Streptomycin Lorsban –SL	2.5 7.5 2.0% v/v 62	0.083b	0.00a	30.00b	36.80b
Maxim Apron XL Streptomycin Cruiser 5FS	2.5 7.5 2.0% v/v 50	0.42b	0.00a	28.40b	33.40b
Maxim Apron XL Streptomycin Lorsban –SL Cruiser 5FS	2.5 7.5 2.0% v/v 62 50	0.00b	0.00a	3.40c	8.40c
Maxim Apron XL Streptomycin Poncho 600	2.5 7.5 2.0% v/v 60	0.08b	0.17a	18.40bc	31.60b

Means within a column followed by the same letter are not significantly different (Ryan's q-test; P=0.05).

Table 3. Bean Leaf Beetle Damage

Treatments	Rate g ai/100 kg seed	% Bean Leaf Beetle Infested Plants – May 31
Untreated	---	55.54a
Maxim Apron XL Streptomycin	2.5 7.5 2.0% v/v	56.91a
Maxim Apron XL Streptomycin Lorsban –SL	2.5 7.5 2.0% v/v 62	22.63b
Maxim Apron XL Streptomycin Cruiser 5FS	2.5 7.5 2.0% v/v 50	24.16b
Maxim Apron XL Streptomycin Lorsban –SL Cruiser 5FS	2.5 7.5 2.0% v/v 62 50	11.81b
Maxim Apron XL Streptomycin Poncho 600	2.5 7.5 2.0% v/v 60	15.31b

Means within a column followed by the same letter are not significantly different (Ryan's q-test; P=0.05).

Table 4. Thrips Counts and Yield

Treatments	Rate g ai/100 kg seed	Thrips per 20 leaflets			
		May 31	June 7	June 14	June 22
Untreated	---	0.50a	4.75a	10.75a	127.75ab
Maxim	2.5				
Apron XL	7.5				
Streptomycin	2.0% v/v	0.25a	5.50a	13.75a	170.00a
Maxim	2.5				
Apron XL	7.5				
Streptomycin	2.0% v/v				
Lorsban –SL	62	0.25a	11.50a	6.50a	211.00a
Maxim	2.5				
Apron XL	7.5				
Streptomycin	2.0% v/v				
Cruiser 5FS	50	0.00a	0.50a	1.00a	10.50b
Maxim	2.5				
Apron XL	7.5				
Streptomycin	2.0% v/v				
Lorsban –SL	62				
Cruiser 5FS	50	0.00a	0.25a	0.00a	9.75b
Maxim	2.5				
Apron XL	7.5				
Streptomycin	2.0% v/v				
Poncho 600	60	0.50a	1.25a	6.50a	75.25ab

Means within a column followed by the same letter are not significantly different (Ryan's q-test).

Insect Management in Fall Snap Beans, 2005: ‘Slenderette’ snap beans were planted on July 20 at the University of Delaware’s Research and Education Center located near Georgetown, DE. Plots consisted of one 15 ft-long row on 30-inch centers. Treatments were replicated four times in a RCB design. Foliar treatments were applied Aug 16 (bud-bloom stage), Aug 23 (pin-stage) and Aug 29 (one week before harvest). Applications were applied as a broadcast spray with a CO₂ pressurized back pack sprayer delivering 39 gpa at 40 psi. At harvest maturity (Sept. 7), all the beans in 6 ft of row were harvested and evaluated for corn earworm (CEW) and European corn borer (ECB) damage. Data were analyzed using ANOVA and means were separated by Ryan’s q-test (P=0.05).

CEW and ECB pressure was light. All treatments provided significantly better CEW control compared to the untreated control. No phytotoxicity was observed.

Treatment	Rate/A	% ECB Damaged Beans	% CEW Damaged Beans
Avaunt 30WG	0.15 lb	0.00a	0.62b
Avaunt 30WG	0.22 lb	0.00a	0.30b
Avaunt 30WG	0.37 lb	0.00a	0.00b
Spintor 2 SC	6 oz	0.00a	0.54b
Intrepid 2F	10 oz	0.00a	0.00b
F2700 0.8EW	4 oz	0.00a	0.18b
Warrior	3.84 oz	0.00a	0.00b
Untreated	----	0.23a	2.71a

Means within a column followed by the same letter are not significantly different (Ryan’s q-test; P=0.05).

Aphid Management in Fall Spinach, 2005: 'Vancouver' spinach was planted on August 26 at the University of Delaware Research and Education Center located near Georgetown, DE. Two row plots twenty ft long on 30-inch centers were replicated 4 times and arranged in a RCB design. All treatments were broadcast applied on Oct 5. Treatments were applied with a CO₂ pressurized backpack sprayer delivering 18.5 gpa @ 40 psi. The number of aphids on each of 10 randomly selected plants per plot was recorded on Oct 4, 11 and 20. Data were analyzed using ANOVA and means were separated by Ryan's q-test (P=0.05).

Aphid pressure was low. All treatments provided significantly better aphid control compared to the untreated check. Lannate LV provided the lowest level of control on Oct 12 (7DAT). No phytotoxicity was observed.

Treatment	Rate/A	Green Peach Aphids/10 plants		
		Oct 4 Pre-Count	Oct 12 7 DAT	Oct 20 15 DAT
Assail 30SG	0.17 lb	21.25a	1.50c	3.25bc
Beleaf 50SG	0.13 lbs	13.75a	0.75c	2.75bc
Beleaf 50SG	0.14 lbs	14.50a	0.00c	1.75c
Provado 1.6F	3.75 oz	16.25a	0.25c	3.00bc
Actara 25WG	2 oz	16.00a	0.25c	3.50bc
Fulfill 50WG	2.8 oz	10.50a	0.50c	4.25bc
Lannate LV	1.5 pt	15.75a	5.75b	10.50b
Untreated	-----	12.00a	15.00a	23.00a

Means within a column followed by the same letter are not significantly different (Ryan's q-test; P=0.05).

Insect Management in Fall Spinach- 2005: Vancouver' spinach was planted on two dates: Aug 26 and Sept 2 at the University of Delaware Research and Education Center located near Georgetown, DE. Two row plots twenty ft long on 30-inch centers were replicated 4 times and arranged in a RCB design. All treatments were broadcast applied on Sept 16, 23 and 30 for the first planting and on Sept 23 and 30 for the second planting. Treatments were applied with a CO₂ pressurized backpack sprayer delivering 18.5 gpa @ 40 psi. The number of webworm and beet armyworm (BAW) larvae on each of 10 randomly selected plants per plot was recorded on Sept 13, 20, and 27; Oct 4,12 for the first planting and on Sept 20, 27 ; and Oct 4,12 for the second planting. Data were analyzed using ANOVA and means were separated by Ryan's q-test (P=0.05).

Webworm pressure was moderate and beet armyworm pressure was low-moderate. In planting number one: (a) all treatments provided significantly better webworm control compared to the untreated check on Oct 4 and 12; (b) the high rate of Avaunt provided the best BAW control on Sept 27; and (c) Proclaim, Spintor and the low rate of Avaunt provided the best BAW control on Oct 4. In planting number two: (a) all treatments provided better webworm control compared to the untreated check except Assail on Oct 12; and (b) all treatments provided better BAW control compared to the untreated except Assail and F2700 on Oct 4. No phytotoxicity was observed.

Planting Number # 1

Table1. Webworm counts – mixture of garden webworm and Hawaiian beet webworm

Treatment	Rate/A	Number Webworms/10 Plants				
		Sept 13 Pre-Trt	Sept 20 4DAT #1	Sept 27 4DAT #2	Oct 4 4 DAT #3	Oct 12 12 DAT #3
Assail 30SG	2.75 oz	1.75a	1.50ab	0.00a	0.25b	3.00bc
F2700 0.8EW	4 oz	1.25a	0.25b	0.00a	0.25b	1.50c
BAS 320	16 oz	1.25a	0.50b	0.00a	0.00b	0.75c
Proclaim 5WDG	0.2 lbs	1.25a	0.25b	0.25a	0.00b	5.00b
Spintor 2SC	4.5 oz	0.75a	0.50b	0.00a	0.00b	0.75c
Avaunt 30WDG	2.4 oz	1.00a	0.25b	0.50a	0.00b	0.50c
Avaunt 30WDG	3.5 oz	1.00a	0.25b	0.00a	0.00b	0.00c
Intrepid 2F	8 oz	1.00a	0.50b	2.00a	0.00b	0.25c
Untreated	-----	0.50a	3.00a	1.50a	1.00a	9.50a

Means within a column followed by the same letter are not significantly different (Ryan's q-test; P=0.05).

Table2. Beet Armyworm (BAW) counts

Treatment	Rate/A	Number BAW/10 Plants				
		Sept 13 Pre-Trt	Sept 20 4DAT Trt #1	Sept 27 4 DAT Trt#2	Oct 4 4DAT # 3	Oct 12 12DAT #3
Assail 30SG	2.75 oz	0.00a	0.25a	1.00bc	1.50ab	0.50a
F2700 0.8EW	4 oz	0.00a	0.00a	1.25bc	1.75ab	0.50a
BAS 320	16 oz	0.00a	1.75a	1.50bc	1.00ab	0.00a
Proclaim 5WDG	0.2 lbs	0.00a	0.00a	0.75bc	0.00b	0.00a
Spintor 2SC	4.5 oz	0.00a	0.00a	1.00bc	0.00b	0.25a
Avaunt 30WDG	2.4 oz	0.00a	0.00a	0.25bc	0.25b	0.00a
Avaunt 30WDG	3.5 oz	0.00a	2.75a	0.00c	0.75ab	0.00a
Intrepid 2F	8 oz	0.00a	0.50a	5.25a	0.75ab	0.00a
Untreated	-----	0.00a	1.75a	4.00ab	3.50a	2.25a

Means within a column followed by the same letter are not significantly different (Ryan's q-test; P=0.05).

Planting Number # 2

Table3. Webworm counts – mixture of garden webworm and Hawaiian beet webworm

Treatment	Rate/A	Number Webworms/10 Plants			
		Sept 20 Pre-treatment	Sept 27 4DAT	Oct 4 11 DAT	Oct 12 19 DAT
Assail 30SG	2.75 oz	1.25a	0.00a	0.50a	10.75ab
F2700 0.8EW	4 oz	1.00a	0.00a	0.75a	5.75bc
BAS 320	16 oz	0.75a	0.00a	0.00a	4.00c
Proclaim 5 WDG	0.2 lbs	1.00a	0.50a	0.25a	4.50c
Spintor 2SC	4.5 oz	1.00a	0.00a	0.50a	4.5c
Avaunt 30WDG	2.4 oz	1.25a	0.00a	0.00a	4.25c
Avaunt 30WDG	3.5 oz	1.00a	0.00a	0.00a	1.50c
Intrepid 2F	8 oz	0.50a	0.25a	0.00a	2.75c
Untreated	-----	1.25a	1.00a	2.75a	14.00a

Means within a column followed by the same letter are not significantly different (Ryan's q-test; P=0.05).

Table4. Beet Armyworm (BAW) counts

Treatment	Rate/A	Number BAW/10 Plants			
		Sept 20 Pre-Treatment	Sept 27 4DAT	Oct 4 11 DAT	Oct 12 19 DAT
Assail 30SG	2.75 oz	0.00a	2.75a	4.00a	2.25a
F2700 0.8EW	4 oz	0.25a	2.00a	2.50ab	0.75a
BAS 320	16 oz	0.75a	0.00a	1.00b	0.00a
Proclaim 5WDG	0.2 lbs	1.75a	0.25a	0.00b	0.00a
Spintor 2SC	4.5 oz	0.00a	3.25a	1.25b	0.25a
Avaunt 30WDG	2.4 oz	0.75a	0.25a	0.25b	0.25a
Avaunt 30WDG	3.5 oz	0.75a	0.00a	0.25b	0.00a
Intrepid 2F	8 oz	0.50a	1.00a	1.50b	0.00a
Untreated	-----	0.75a	3.50a	4.25a	1.00a

Means within a column followed by the same letter are not significantly different (Ryan's q-test; P=0.05).

Insect Management in Late Planted Sweet Corn - 2005: 'Silverado' sweet corn was planted on July 1 at the University of Delaware Research and Education Center located near Georgetown, DE. Plots consisted of two row, 20 ft-long plots planted on 30-inch centers. Each treatment was replicated 4 times and arranged in a RCB design. All treatments listed in the table were applied on a 3-4 day schedule (Aug 11,15,18,22,26,29; Sep 2). Applications of foliar insecticides were applied with a CO₂ pressurized back sprayer using 4 nozzles per row delivering 41 gpa at 40 psi. At harvest (Sep 6), forty ears from each plot were husked and evaluated for damage as percent clean ears (fresh market) and percent clean plus tip damaged ears (only within 1.0 inches from the tip-processing ears). The total number of larvae of each species was also counted. Data were analyzed using ANOVA and means were separated by Ryan's q-test (P=0.05).

Sap beetle pressure was extremely heavy. Corn earworm pressure was high, but occurred late in the silk period. Corn borer pressure was moderate and fall armyworm pressure was low. All treatments provided a significantly higher percentage of processing ears (clean + tip damage) compared to the untreated check. All treatments provided a higher percentage of fresh market ears compared to the untreated check except the Avaunt, Intrepid and Larvin treatments. All treatments provided better CEW and ECB control compared to the untreated check. The Avaunt, Intrepid and Larvin treatments provided the lowest level of CEW and sap beetle control. No phytotoxicity was observed.

Treatment	Rate/A	% Clean Ears (Fresh Market)	% Clean + Tip Damaged Ears (Processing Ears)	% Damaged Ears			
				CEW	FAW	ECB	Sap Beetle
F2700 0.8 EW	4 oz	71.88bc	90.00a	15.00cd	0.63a	0.00b	26.78cd
Avaunt 30 WG	3.5 oz	11.25e	45.00b	59.38b	0.63a	2.50b	88.75a
DPX-E2Y45 + MSO	3.37 oz + 0.25% v/v	53.75d	78.75a	11.88cd	0.00a	0.63b	55.80b
Lannate LV alternated Warrior	1.5 pt alternate 3.84 oz	59.38cd	73.13a	22.50c	0.00a	1.25b	40.63bc
Intrepid 2F	8 oz	10.63e	35.00b	71.88b	0.00a	3.13b	89.38a
Larvin 3.2F	20 oz	14.38e	43.75b	62.50b	3.13a	3.13b	85.00a
Lannate LV + Warrior	1.5 pt + 3.84 oz	84.38ab	93.13a	1.88d	0.63a	1.88b	13.75d
Warrior	3.84 oz	88.13a	93.13a	4.38d	1.25a	0.63b	11.88d
Baythroid 2E	2.8 oz	77.50ab	86.88a	13.13cd	1.25a	1.25b	22.50cd
Baythroid XL	2.8 oz	73.50abc	86.25a	7.50cd	2.50a	3.75b	25.00cd
Decis 1.5EC	2.4 oz	74.38abc	86.88a	9.38cd	1.25a	1.25b	25.00cd
Untreated	---	0.00e	6.25c	95.00a	1.88a	13.13a	100.00a

Means in the same columns followed by the same letter are not significantly different (Ryan's q-test; P=0.05).

Seed Corn Maggot Management in Sweet Corn Using Seed Treatments, 2005: ‘Incredible’ sweet corn was planted on April 18 at the University of Delaware Research and Education Center located near Georgetown, DE. Four-row 20 foot long plots planted on 30-inch centers were replicated 4 times in a RCB design. Seeds treatments were commercially applied by Gustafson. Seed corn maggot (SCM) infestation levels and stand counts were evaluated on May 9. Yields were not taken due to poor stand conditions. Data were analyzed using ANOVA and means were separated by Ryan’s q-test (P=0.05).

Seed Corn Maggot pressure was low. Stand emergence was extremely uneven due to seed size irregularity and planting difficulty into corn stalk cover. No phytotoxicity was observed.

Treatment	Rate	SCM per 4 ft of row May 9	Stand Count per 40 ft of row May 9
Untreated	---	0.75a	32.35a
Poncho 600 FS	0.25 MG ai/seed	0.50a	39.25a
Dynasty FS Cruiser 600 FS	1 G ai/100 KG 0.25 MG ai/seed	1.25a	21.00a
Trilex Poncho 600 FS	5 G ai/100 KG 0.25 MG ai/seed	0.75	36.00a
Force 3 G	5.5 lbs/A	1.25a	21.00a

Means within a column followed by the same letter are not significantly different (Ryan’s q-test; P=0.05).

Wireworm Management in Sweet Corn Using Seed Treatments, 2005: ‘Eliminator’ sweet corn was planted on April 18 at the University of Delaware Research and Education Center located near Georgetown, DE. Four-row 20 foot long plots on 30-inch centers were replicated 4 times in a RCB design. Seeds treatments were commercially applied by Gustafson. Stand counts and wireworm damaged plants were evaluated on a 7-10 day basis from May 2 through May 31. Yields were not taken due to deer damage. Data were analyzed using ANOVA and means were separated by Ryan’s q-test (P=0.05).

Wireworm pressure was low. All treatments provided significantly better wireworm control compared to the untreated check except the Gaucho and Cruiser on May 23 and the Gaucho on May 31. All treatments provided significantly higher stand counts compared to the untreated check. No phytotoxicity was observed.

Table I. Wireworm Damage Data

Treatment	Rate	WW/4 ft of row	% Wireworm Damaged	
		May 2	May 23	May 31
Untreated	---	0.75a	3.93a	2.43a
Captan 400 Thiram 42S Allegiance FL	94 G ai/100 KG 78 G ai/100 KG 15 G ai/100 KG	0.00a	0.00b	0.97ab
Captan 400 Thiram 42S Allegiance FL Poncho 600 FS	94 G ai/100 KG 78 G ai/100 KG 15 G ai/100 KG 0.25 MG ai/seed	0.00a	0.00b	0.00b
Captan 400 Thiram 42S Allegiance FL Vortex Gaucho 480	94 G ai/100 KG 78 G ai/100 KG 15 G ai/100 KG 1.25 G ai/100 KG 0.25 MG ai/seed	0.00a	0.96ab	1.31ab
Captan 400 Thiram 42S Allegiance FL L-1243-A Poncho 600 FS	94 G ai/100 KG 78 G ai/100 KG 15 G ai/100 KG 110 G ai/100 KG 0.25 MG ai/seed	0.50a	0.46b	0.00b
Maxim Apron XL Dividend Extreme Cruiser 5FS	2.5 G ai/100 KG 7.5 G ai/100 KG 130.1 ml/100 KG 0.25 MG ai/seed	0.50a	1.36ab	0.00b

Means within a column followed by the same letter are not significantly different (Ryan’s q-test; P=0.05).

Table 2. Stand Count

Treatment	Rate	Plants per 40 ft of row			
		May 2	May 9	May 23	May 31
Untreated	---	40.75b	43.25b	45.00b	44.0b
Captan 400 Thiram 42S Allegiance FL	94 G ai/100 KG 78 G ai/100 KG 15 G ai/100 KG	52.25a	53.50a	52.75a	54.75a
Captan 400 Thiram 42S Allegiance FL Poncho 600 FS	94 G ai/100 KG 78 G ai/100 KG 15 G ai/100 KG 0.25 MG ai/seed	54.25a	56.50a	56.25a	59.25a
Captan 400 Thiram 42S Allegiance FL Vortex Gaucho 480	94 G ai/100 KG 78 G ai/100 KG 15 G ai/100 KG 1.25 G ai/100 KG 0.25 MG ai/seed	51.00a	53.25a	53.75a	55.75a
Captan 400 Thiram 42S Allegiance FL L-1243-A Poncho 600 FS	94 G ai/100 KG 78 G ai/100 KG 15 G ai/100 KG 110 G ai/100 KG 0.25 MG ai/seed	51.50a	53.25a	53.00a	55.75a
Maxim Apron XL Dividend Extreme Cruiser 5FS	2.5 G ai/100 KG 7.5 G ai/100 KG 130.1 ml/100 KG 0.25 MG ai/seed	52.75a	55.25a	55.25a	55.50a

Means within a column followed by the same letter are not significantly different (Ryan's q-test; P=0.05).

Insect Management in Watermelons with Chemigation - 2005: 'Jamboree' melon transplants were planted on May 31 at the University of Delaware Research and Education Center located near Georgetown, DE. Plots consisted of two 50 ft-long rows on 8 ft centers. Each treatment was replicated five times and arranged in a RCB design. Chemigation treatments were applied on three dates: June 13, 30 and July 13. Cucumber beetle, aphid and spider mite populations were evaluated on a weekly basis from June 6 through July 27. Beetle and aphid populations were assessed by looking at 10 plants per plot to determine the percent infested plants, the number of beetles per 10 plants, and the number of aphids per 50 leaves. On the early evaluation dates, 50 leaves were examined per plot to determine the number of spider mites per leaf. On the last 2 evaluation dates, 20 leaves per plot were collected and a mite brushing machine was used to determine the number of mites per leaf. On Aug 2, all crown fruit was collected from each plot. Data were analyzed using ANOVA and means were separated by Ryan's q-test (P=0.05).

Insect and mite populations were moderate. The Vydate and Lannate treatments provided significantly better cucumber beetle control on June 17 (4 days after first chemigation) and July 27 (14 days after the third chemigation). Both treatments also provided significantly better aphid control on June 17 compared to the untreated check. The Lannate treatment had a significantly higher spider mite count and a significantly higher percentage of spider mite infested plants compared to the untreated check on July 27. No phytotoxicity was observed.

Table 1. Cucumber Beetles Counts

Treatment	Rate/A/ Appl.	Cucumber Beetle per 10 Plants								
		June 6	June 13	June 17	June 22	June 30	July 6	July 13	July 20	July 27
Vydate 2L	64 oz	4.00a	10.00a	0.00b	1.40a	3.00a	0.00a	0.60a	0.40a	0.20b
Lannate LV	48 oz	0.50a	9.40a	0.20b	1.00a	2.00a	1.20a	0.40a	1.80a	0.20b
Untreated	-----	8.00a	6.80a	10.60a	5.40a	3.00a	0.40a	1.00a	1.00a	1.50a

Means within a column followed by the same letter are not significantly different (Ryan's q-test; P=0.05).

Table 2. Cucumber Beetle Infested Plants

Treatment	Rate/A/ Appl	Percent Cucumber Beetle Infested Plants								
		June 6	June 13	June 17	June 22	June 30	July 6	July 13	July 20	July 27
Vydate 2L	64 oz	22.50a	54.00a	0.00b	20.00a	14.00a	2.00a	4.00a	4.00a	2.00b
Lannate LV	48 oz	5.00a	62.00a	0.00b	26.00a	12.00a	8.00a	2.00a	12.00a	2.00b
Untreated	-----	42.40a	42.00a	70.00a	36.00a	22.00a	4.00a	4.00a	10.00a	14.00a

Means within a column followed by the same letter are not significantly different (Ryan's q-test; P=0.05).

Table 3. Melon Aphid Count

Treatment	Rate/A/ Appl.	Melon Aphids per 50 leaves								
		June 6	June 13	June 17	June 22	June 30	July 6	July 13	July 20	July 27
Vydate 2L	64 oz	0.25a	18.40a	0.00b	0.00a	0.40a	0.40a	0.00a	0.20a	0.20a
Lannate LV	48 oz	2.50a	40.40a	0.00b	0.00a	0.00a	0.00a	0.00a	0.60a	0.60a
Untreated	-----	1.25a	5.80a	17.60a	20.40a	184.60a	117.20a	3.40a	1.20a	1.20a

Means within a column followed by the same letter are not significantly different (Ryan's q-test; P=0.05).

Table 4. Melon Aphid Infested Plants

Treatment	Rate/A/ Appl.	Percent Melon Aphid Infested Plants								
		June 6	June 13	June 17	June 22	June 30	July 6	July 13	July 20	July 27
Vydate 2L	64 oz	2.50a	10.00a	0.00a	0.00a	2.00a	2.00a	0.00a	0.00a	2.00a
Lannate LV	48 oz	10.00a	26.00a	0.00a	0.00a	0.00a	0.00a	0.00a	0.00a	2.00a
Untreated	-----	10.00a	14.00a	22.00a	10.00a	14.00a	26.00a	2.00a	2.00a	8.00a

Means within a column followed by the same letter are not significantly different (Ryan's q-test; P=0.05).

Table 5. Spider Mite Count

Treatment	Rate/A/Appl.	Spider Mites per 50 Leaves				Spider Mites per 20 leaves	
		Jun 17	June 30	July 6	July 13	July 20	July 27
Vydate 2L	64 oz	0.60a	9.00a	43.20a	65.20a	96.00a	45.00ab
Lannate LV	48 oz	0.40a	3.00a	86.00a	89.80a	131.80a	98.40a
Untreated	-----	0.20a	2.00a	51.40a	47.60a	51.80a	17.80b

Means within a column followed by the same letter are not significantly different (Ryan's q-test; P=0.05). Data for spider mites were log transformed [$\log_{10}(n+1)$], non-transformed means are presented.

Table 6. Spider Mite Infested Plants

Treatment	Rate/A/Appl.	Percent Spider Mite Infested Plants					
		Jun 17	June 30	July 6	July 13	July 20	July 27
Vydate 2L	64 oz	0.40a	1.60a	5.60a	9.20a	31.00a	27.00ab
Lannate LV	48 oz	0.80a	3.20a	5.60a	11.60a	35.00a	36.00a
Untreated	-----	0.40a	1.60a	4.40a	6.80a	25.00a	18.00b

Means within a column followed by the same letter are not significantly different (Ryan's q-test; P=0.05).

Table 7. Yield Data

Treatment	Rate/A/Appl.	Total Number Melons	Average Wt/Melon (lbs)	Total Wt Crown Fruit(lb)
Vydate 2L	64 oz	22.40a	20.81a	464.80 a
Lannate LV	48 oz	23.40a	21.10a	493.10a
Untreated	-----	19.20a	20.26a	396.10a

Means within a column followed by the same letter are not significantly different (Ryan's q-test; P=0.05).

Two Spotted Spider Mite Management in Watermelons - 2005: 'Jamboree' watermelon transplants were planted on May 31 at the University of Delaware Research and Education Center located near Georgetown, DE. Plots consisted of two 35 ft-long rows on 8 ft centers. Each treatment was replicated four times and arranged in a RCB design. Treatments were applied as a broadcast spray on July 12. All foliar treatments were applied with a CO₂ pressurized ATV 4-wheeled sprayer delivering 22 gpa at 60 psi. Mite populations were evaluated on a weekly basis from June 7 through July 27 by looking at 5 plants per plot to determine the percent infested plants and by collecting 20 leaves per plot and using a mite brushing machine to determine the number of mites per leaf. Data were analyzed using ANOVA and means were separated by Ryan's q-test (P=0.05).

Spider population pressure was light. The CAPS treatment provided the lowest level of control. No phytotoxicity was observed.

Treatment	Rate/A	Pre-treatment July 6		Mean Number Spider Mites per Leaf Post Counts		
		Number Spider Mites per Leaf	Percent Mite Infested Plants	July 15 3DAT	July 20 8DAT	July 27 15DAT
Zeal 72WD	2 oz	0.66a	25.00a	0.60b	0.15a	0.23ab
Zeal 72WD	3 oz	1.60a	30.00a	0.60b	0.00a	0.00b
Zeal 72 WD	3 oz	1.37a	45.00a	0.28b	0.00a	0.00b
Oberon 2 SC	8.5 oz	0.37a	30.00a	0.49b	0.00a	0.00b
Capture 2EC	6.4 oz	0.96a	30.00a	0.41b	0.00a	0.00b
Agri-Mek 0.15 EC	8 oz	0.55a	35.00a	0.26b	0.00a	0.00b
CAPS	2.4 oz/gallon	4.05a	50.00a	3.19a	3.04a	1.24a
Acramite 75WG + Silwet	16 oz 3 oz/100 gal	0.13a	30.00a	0.56b	0.04a	0.00b
Acramite 50WS +Silwet	16 oz 3 oz/100 gal	0.27a	20.00a	0.38b	0.00a	0.00b
Untreated	-----	0.31	40.00a	1.69ab	1.18a	1.09ab

Means within a column followed by the same letter are not significantly different (Ryan's q-test; P=0.05).